

CLAIMS

1. A method of producing a cathode material for a lithium secondary cell, comprising the steps of preparing a solution selected from the group consisting of an alkaline solution, a carbonate solution, and a hydrogencarbonate solution, with a compound of a metal, as the major component of a cathode material for a lithium secondary cell, suspended therein, dripping an aqueous solution of a salt of other element into the solution, precipitating a compound of the other element on the surface of the compound of the metal, as the major component, subsequently preparing a mixture by mixing the compound of the metal, as the major component, with the compound of the other element, precipitated and bonded thereon, with a lithium compound, and firing the mixture.

2. A method of producing a cathode material for a lithium secondary cell, according to Claim 1, wherein the metal in the compound of the metal, as the major component, is an element selected from the group consisting of elements Co, Mn, and Ni.

3. A method of producing a cathode material for a lithium secondary cell, according to Claim 1 or 2, wherein the other element is at least one element selected from the group consisting of transition metals (Sc, Ti, V, Cr, Mn, Fe, Co, Ni, and Cu), alkaline metals (Li, Na, K, Rb, Cs, and Fr), alkaline earth metals (Be, Mg, Ca, Sr, Ba, and Ra), B, and Al.

4. A method of producing a cathode material for a lithium secondary cell, according to any of Claims 1 to 3, wherein a ratio of the metal in the compound of the metal, as the major component, to the other element is in a range of 99 : 1 to 40 : 60 in terms of a mole ratio.

5. A method of producing a cathode material for a lithium secondary cell, according to Claim 1 or 4, wherein the metal in the compound of the metal, as the major component, is an element Mn, and the other element is at least one element selected from the group consisting of Co, Ni, Al, Mg, and Ti).

6. A method of producing a cathode material for a lithium secondary cell, according to Claim 1 or 4, wherein the metal in the compound of the metal, as the major component, is an element Co, and the other

element is at least one element selected from the group consisting of Mn, Ni, Al, Mg, and Ti).

7. A method of producing a cathode material for a lithium secondary cell, according to Claim 1 or 4, wherein the metal in the compound of the metal, as the major component, is an element Ni, and the other element is at least one element selected from the group consisting of Co, Mn, Al, Mg, and Ti).